

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

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Applicant's or agent's file reference 0283	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/IB 02/05529	International filing date (day/month/year) 20.12.2002	Priority date (day/month/year) 20.12.2002
International Patent Classification (IPC) or both national classification and IPC A23L1/22		
Applicant COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH		

- This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
  - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 16.07.2004	Date of completion of this report 20.05.2005
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Inceisa, L  Telephone No. +31 70 340-3876 

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB 02/05529

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, Pages

1-7 as originally filed

### Claims, Numbers

1-10 received on 17.08.2004 with letter of 17.08.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following document:

D1: US-A-5512290

1. The subject-matter of claims 1-10 is new in regard of the available prior art.
2. The document D1 is regarded as being the closest prior art to the subject-matter of claim 9, and discloses a process for the preparation of a stable powder composition containing 2-acetyl-1-pyrroline (2AP) incorporated in a maltodextrin/gum arabic matrix (see col.6 example 6).

The process comprises the following steps:

- (i) providing an aqueous solution containing 2AP and 1N HCl,
- (ii) adding an aqueous solution containing NaOH, maltodextrin (a binder) and gum arabic (a binder) to the solution,
- (iii) freeze drying the mixture, whereby a white powder is obtained.

The subject-matter of claim 1 therefore differs from D1 in that

- 1) an emulsifier is present,
- 2) 2AP is dissolved in an ethanolic solution (instead of an aqueous solution),
- 3) the solution is additionally homogenized for a period of 3-5 minutes.

The problem to be solved by the present invention may be regarded as how to produce a basmati rice-flavour which is stable and easily disperible in food products.

The solution proposed by the applicant can therefore be seen as an alternative process to D1.

Although the technical advantages of the features 1)-3) in claim 1 cannot be clearly seen, there is no hint in D1 to introduce these features.

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Claim 1 is therefore considered as inventive. Claims 2-10 are dependent on claim 1 and are also inventive.

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**Claims**

1. An improved process for the stabilization of 2-acetyl-1-pyrroline, a basmati aroma producing principle, the said process comprising steps of:
  - a) dissolving a binder in water containing few drops of an emulsifier,
  - b) adding an ethanol solution of 2-acetyl-1-pyrroline to step (a) solution,
  - c) homogenizing step (b) solution for a time period of 3 to 5 minutes, and
  - d) drying the homogenized solution of step (c) to obtain the stabilized flavor 2-acetyl-1-pyrroline in a dispersible dry powder form.
2. The process of claim 1, wherein in step (a), the binder used is from a vegetable source.
3. The process of claim 2, wherein the binder used is selected from a group consisting of gum acacia, starch or mixtures thereof.
4. The process of claim 1, wherein the ratio of 2-acetyl-1-pyrroline and the binder used is in the ratio of 0.1 to 1.0: 2000.
5. The process of claim 1, wherein in step (a), the emulsifier used is selected from a group consisting of Tween 80, Tween 60 and more preferably Tween 60.
6. The process of claim 1, wherein 2-acetyl-1-pyrroline used is prepared by adopting known methods.
7. A process of claim 1, wherein in step (d) the drying is performed by vacuum shelf drying or spray drying.
8. A process of claim 7, wherein vacuum shelf drying is performed at reduced pressure of 24" and at a temperature in the range of 30° - 60° C.
9. A process of claim 7, wherein spray drying is carried by using a feed rate of 80 ml/min. with an inlet air temperature of 140° C and outlet temperature of 80° C.
10. A process of claim 1, wherein the stabilized flavor obtained is used for flavouring rice and related products.

SUBSTITUTE SHEET (ARTICLE 19)